

**Notice of Allowability**

Application No.

10/006,010

Examiner

Dennis Rosario

Applicant(s)

WEISMULLER, THOMAS P.

Art Unit

2621

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amt. 12/6/2004.
2. ☒ The allowed claim(s) is/are 1 and 3-15.
3. ☒ The drawings filed on 12/4/2001 1/29/2002 12/6/2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 12/4/01
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mark D. Elchuk on May 19, 2005.

The application has been amended as follows:

In claim 1, insert between lines 5 and 6 -- calculating the number of said detectable pixels of each of said library images;--.

In claim 1, insert between lines 8 and 9 -- calculating the number of said detectable pixels of said object image;--.

In claim 1, insert between lines 9 and 10 -- resizing said object image by the ratio of the square root of the quotient of said number of said detectable pixels of one of said library images and said number of said detectable pixels of said object image;--.

In claim 1, delete lines 18 and 19.

In claim 1, insert at line 18 -- determining an orientation of said object from said library image having said maximum match score.--.

Cancel claim 2.

***Response to Amendment***

2. The amendment was received on December 6, 2004. Claims 1-15 are pending.

***Response to Arguments***

3. Applicant's arguments, see amendment, page 10, lines 10-15 and page 11, last paragraph, filed 12/6/2004, with respect to claim 9 have been fully considered and are persuasive. The rejection of claim 9 has been withdrawn.

***Allowable Subject Matter***

4. Claims 1-15 are allowed.
5. Regarding claim 9, applicants properly point out, stating on page 10, lines 10-15, "At the outset, claim 1 has been amended to clarify that the plurality of images are 'of an object wherein each of the library images depicts the object in a different orientation.' Claim 1 has also been amended to include the use 'of said object images to determine a maximum [highest] match score for each of said library [reference] images, to thus determine which one of said library [reference] images at least substantially matches an orientation [attitude] of said object.'", and page 11, last paragraph, "...the present invention discloses a method for determining object attitude that does not appear to be taught or suggested by Morris." Hence, and in view of applicants arguments, amendment and in combination with all of the other elements of the claim, claim 9 is allowable over the closest prior art of Pope. Thus, dependent claims 10-15 are allowed because they depend on an allowable claim, 9.
6. The following is an examiner's statement of reasons for allowance:

Claim 1 is allowed over the prior art, because the prior art does not teach the limitation of claim 2 especially in view of applicants arguments, amendment and in combination with all of the other elements of the claim 1.

The closest prior art, Morris et al. does suggest calculating a number as taught in column 8, lines 13-17, but does not use the calculated number for the claimed "resizing said object image." Instead the calculated number is calculated after a resizing or "normalization" as shown in fig. 1,num. 14: NORMALIZED MODULE for a "Learning Vector Quantization." To combine the Learning Vector Quantization with a reference that resizes, as taught in Zhou et al. (USP 6,327,388 B1, col. 5, lines 3-11), said object image would be hindsight because the Learning Vector Quantization does not suggest a resizing said object image.

On the other hand, to use Zhou et al. as a primary reference for claim 1 either as an anticipatory or in a combination of references would not be successful for a number of reasons:

- 1) Zhou et al.'s library images as shown in fig. 1,num. 30: Logo Bit Patterns and Parameters Database does not have the claimed different orientation. Instead fig. 1,num. 30 contains images with "no skew" in col. 4, lines 49,50.

- 2) Zhou does not teach the limitation of comparing wherein the claimed "to thus determine which one of said library images at least substantially matches an orientation of said object." Instead, Zhou uses an input image or the claimed object, fig. 1,num. 20: Document Image and aligns the input image or the claimed object to the

image of fig. 1, num. 30: Logo Bit Patterns and Parameters Database not to determine an orientation of the object, but to determine a "difference image" in col. 5, line 61.

3) Zhou does not teach the limitation of selecting instead Zhou teaches ranking as shown in fig. 8. The ranking is not used for the claimed determining an orientation, instead the ranking is the final product of the invention.

The benefit of claim 1 rapidly determines three-dimensional attitude of an object.

Thus, dependent claims 3-8 are allowed because they depend on allowable claim 1. Note that claim 2 was cancelled in the examiner's amendment.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Rosario whose telephone number is (571) 272-7397. The examiner can normally be reached on 6-3.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DR

Dennis Rosario  
Unit 2621



BHAVESH M. MEHTA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600